GE
Lighting

WORLDWIDE PARTNER

Multi-Vapor™

Metal Halide Lamps

DATA SHEET

Elliptical Clear
250W, 400W and 1000W

Elliptical Diffuse
250W and 400W

High Output Elliptical Clear & Diffuse
250W and 400W

Product information

High brightness, high quality white light with excellent colour rendition and energy efficiency makes GE Multi-Vapor™ Metal Halide lamps particularly suitable for commercial and industrial interiors, particularly in high ceiling areas:

Application areas

- Road and tunnel
- Street and Pedestrian
- Commercial areas
- Industrial
- Sport
- Car Park

Basic data

Product Code	Product Description	Nominal Wattage [W]	Rated Wattage [W]	Volts [V]	Cap	Nominal Lumen [lm]	Rated Lumen [lm]	Rated Lamp Efficacy [lm/W]	Rated Average Life [hr]	Mercury Content [mg]	CCT [K]	Colour Rendering Index [Ra]	Ambient Temp. [°C]	Minimum Starting Temp. [°C]
Multi-Vapor™ Elliptical Clear														
44542*	MVR 250/U/40	250	250	133	E40	20,800	20,940	84	10,000	31.0	4,200	65	25	-30
43907*	MVR 400/U/40	400	400	135	E40	40,000	40,640	102	20,000	63.0	4,000	65	25	-30
41828	MVR 1000/U/40	1,000	1,000	250	E40	108,000	108,000	108	15,000	150.0	4,000	64	25	-30
Multi-Vapor™ Elliptical Diffuse														
44543*	MVR 250/C/U/40	250	250	133	E40	20,000	20,310	81	10,000	31.0	3,900	70	25	-30
43908	MVR 400/C/U/40	400	400	135	E40	40,000	40,010	100	20,000	63.0	3,700	70	25	-30
Multi-Vapor™ High Output Elliptical Clear														
98777	MVR 250/VBU/40	250	250	133	E40	22,000	22,000	88	10,000	31.0	4,500	65	25	-30
49860	MVR 400/VBU/40	400	400	135	E40	41,000	40,840	102	20,000	63.0	4,000	62	25	-30
Multi-Vapor™ High Output Elliptical Diffuse														
98778	MVR 250/C/VBU/40	250	250	133	E40	20,000	19,600	78	10,000	31.0	4,200	65	25	-30
27738	MPR 400/C/VBU/0/40	400	400	135	E40	38,000	38,200	96	20,000	63.0	3,000	65	25	-30
49857	MVR 400/C/VBU/40	400	400	135	E40	40,000	40,210	101	20,000	63.0	3,700	65	25	-30

Note: All performance data mentioned above is related to VBU burning position.
*Non EU product

GE imagination at work

Dimensions

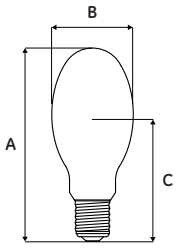


Figure 1.

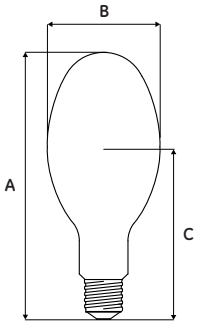


Figure 2.

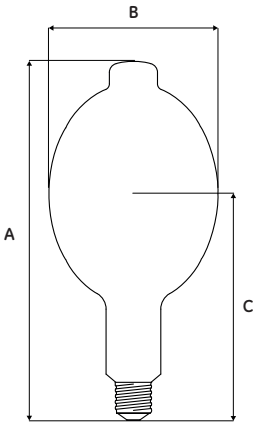


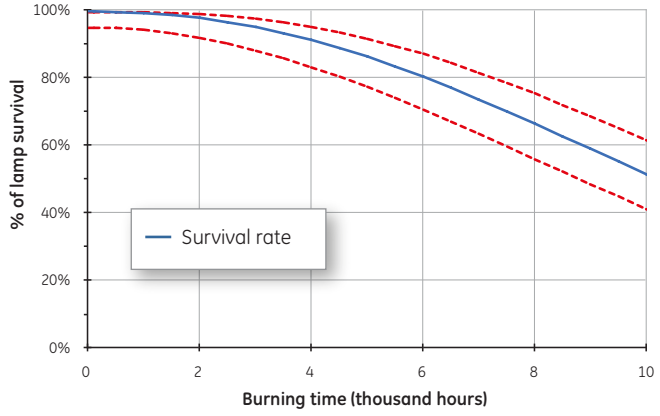
Figure 3.

Product Code	Wattage	A Length [mm]	B Diameter [mm]	C LCL [mm]	Cap	Operating Position	Bulb Glass	Mass	Figure No.
44542	250	211	90	127	E40	Universal	Hard glass	155	1
43907	400	292	117	178	E40	Universal	Hard glass	245	2
41828	1000	390	178	241	E40	Universal	Hard glass	385	3
44543	250	211	90	–	E40	Universal	Hard glass	155	1
43908	400	292	117	–	E40	Universal	Hard glass	245	2
98777	250	211	90	127	E40	Vertical base up ±15°	Hard glass	155	1
49860	400	292	117	178	E40	Vertical base up ±15°	Hard glass	245	2
27738	400	292	117	–	E40	Vertical base up ±15°	Hard glass	245	2
98778	250	211	90	-	E40	Vertical base up ±15°	Hard glass	155	1
49857	400	292	117	–	E40	Vertical base up ±15°	Hard glass	245	2

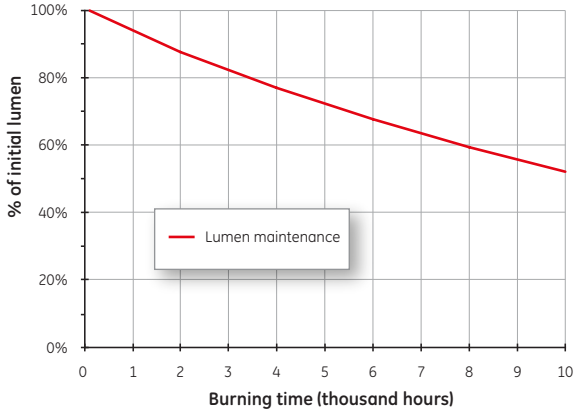
Survival rate and lumen maintenance

The graph shows the survival of representative groups of lamps operated under controlled conditions at 10 hours per start. Lamp life in service will be affected by a number of parameters, such as mains voltage deviations, switching cycle, luminaire design and control gear. The information given is intended to be a practical guide in determining lamp replacement procedures.

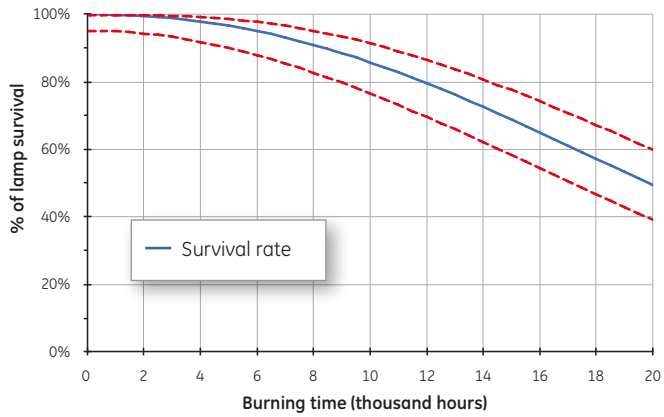
Lamp survival
Multi-Vapor™ 250W lamps



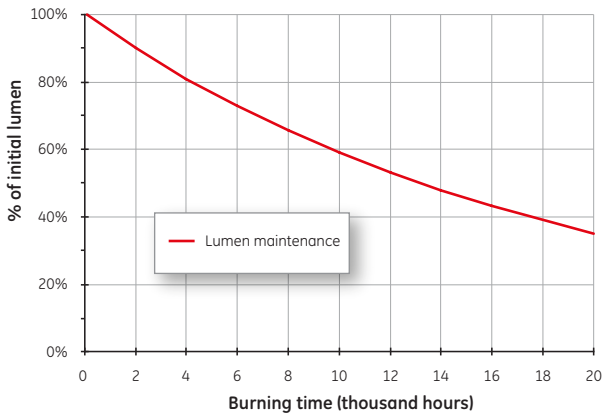
Lumen maintenance
Multi-Vapor™ 250W lamps



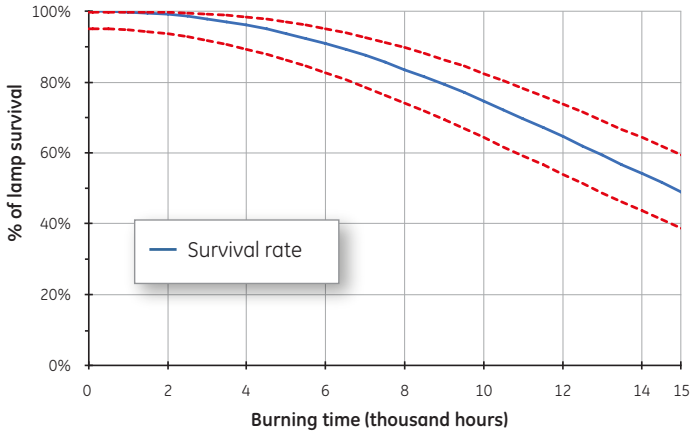
Lamp survival
Multi-Vapor™ 400W lamps



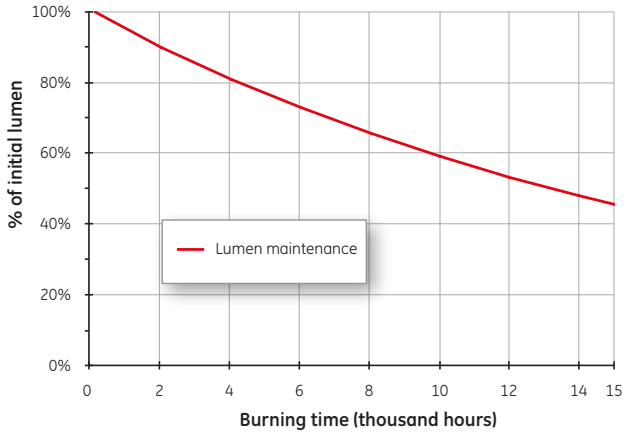
Lumen maintenance
Multi-Vapor™ 400W lamps



Lamp survival
Multi-Vapor™ 1000W lamps

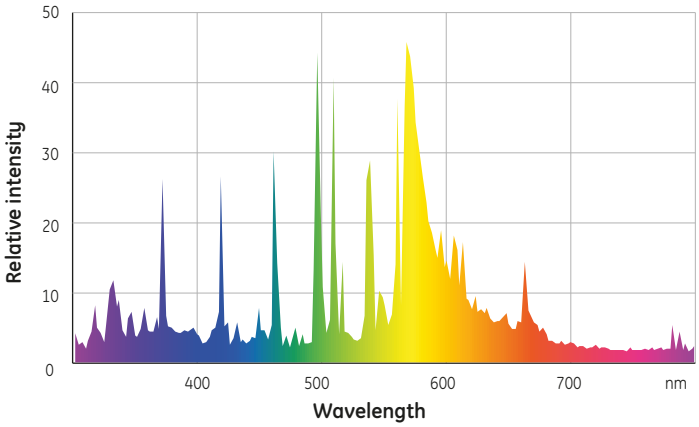


Lumen maintenance
Multi-Vapor™ 1000W lamps

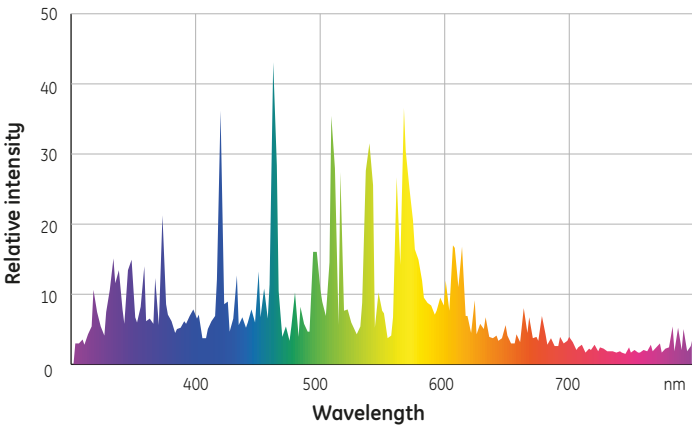


Spectral power distribution

3000K spectral power distribution



4000K spectral power distribution



Operating note

All metal halide lamps operate with a high internal pressure and there is a slight risk that lamps may shatter, particularly if run beyond rated life. Turn lamp off at least once for 15 minutes per week. FAILURE TO COMPLY INCREASES THE RISK OF RUPTURE. Do not use beyond rated life. The lamp must be fully enclosed by a luminaire to ensure the retention of any fragments in the event of such failure with the exception of lamps which are rated for open fixtures such as: MPR 400/C/VBU/0/40 (27738).

Electrical data

Data is based on a nominal lamp operating from an ANSI reference ballast according to C78.43 with power factor correction.

Wattage	Volts [V]	Current [A]	Maximum Current Crest Factor
250	133	2.1	1.8
400	V135/H133*	3.2	1.8
1000	V263/H255*	V4.1/H4.2*	1.8

*V=VBU and H=HOR

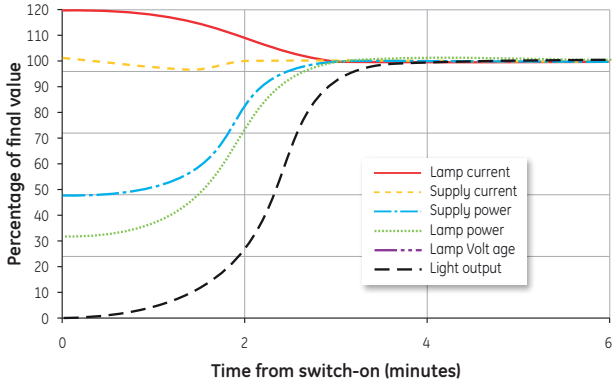
Hot re-strike time

All ratings re-strike within 10 minutes following a short interruption in the supply. Actual re-strike time is determined by ignitor type, pulse voltage and cooling rate of the lamp.

Run-up characteristics

Time for light output to reach 90% of the final value is determined by actual supply voltage and ballast design. Typical values are:

Typical run-up characteristics



Supply voltage

Lamps are suitable for supplies in the range described in the ballast manufacturer's datasheet.

Supplies outside this range require a transformer (conventional, high reactance or CWA) to ensure correct lamp operation. Lamps start and operate at 10% below the rated supply voltage when the correct control gear is used. However, in order to maximise lamp survival, lumen maintenance and colour uniformity the actual supply voltage and ballast design voltage should be within ±3%. Supply variation of ±5% is permissible for short periods only. Matching of multi-tapped ballasts to actual supply voltage may be achieved by measuring mean supply voltage at the installation and selecting the appropriate ballast setting/tapping.

Control gear

Lamps of this type are designed to operate on control gear specified in ANSI standard C78-43. It is essential to use a ballast appropriate to the supply voltage at the luminaire. For typical wiring diagrams for control circuits refer to actual ballast and ignitor manufacturer's data for terminal identification and wiring information.

Fusing of circuits

A number of factors need to be taken into account when selecting the rating and characteristic of the supply line fuse/MCB:

(a) At the instant the circuit is switched-on, PFC capacitor current can be many times the steady state value for a very short period (few hundred microseconds).
(b) For a short period (few seconds) after switch-on all discharge lamps may act as a partial rectifier and as a result the ballast can allow several times the normal supply current to flow.
(c) During the lamp run-up period supply current is higher than normal (see graph).

To avoid nuisance fuse failure/tripping of the MCB, ratings need to allow for all these factors. Individual lamp circuits should be fused using the single circuit value in the table. For multiple lamp installations, ratings in the table apply to main distribution line fuses supplying several lamp circuits.

Guidance for luminaire manufacturers

Lamp operating temperature limits

Wattage	Maximum Cap Temperature [°C]	Maximum Bulb Temperature [°C]
250	210	400
400	210	400
1000	210	430

Ballasts

These lamps are compatible with ballasts manufactured to meet specifications shown in ANSI C78-43. Ballast and luminaire thermal testing should be undertaken to ensure the ballast is not overloaded under lamp operating conditions approaching rated life. To maintain optimum system performance and minimise risk of ballast thermal overload, lamps should not be operated past rated life.

Ballast thermal protection

Use of ballasts incorporating a thermal cut-out is not a specific requirement but is a good optional safety measure.

Ballast voltage adjustment

Series choke (reactor) ballasts incorporating additional tappings at ±10V of the rated supply voltage are recommended. Alternatively a single additional tapping 10V above the rated supply voltage will ensure lamps are not overloaded due to excessive supply voltage.

PFC capacitors for ballasts

Power Factor Correction is advisable in order to minimise supply current and energy costs. Power Factor Correction capacitor values and ratings are dependent upon the type of ballast and supply voltage used. Follow the ballast manufacturer's recommendations.

Warning

Risk of electric shock

- Turn power off before inspection, installation or removal
- Do not use lamp directly exposed to water or outdoors without an enclosed fixture

Risk of fire

- Keep combustible materials away from lamp
- Use in fixture rated for this product

A damaged lamp emits UV radiation which may cause eye/skin injury

- Turn power off if glass bulb is broken
- Remove and dispose of lamp

Unexpected lamp rupture may cause injury, fire, or property damage

- Turn lamp off at least once for 15 minutes per week - FAILURE TO COMPLY INCREASES THE RISK OF RUPTURE
- Do not use beyond rated life
- Beyond rated life, light output diminishes while energy consumption and risk of lamp rupture increases
- Do not use lamp if outer glass is scratched or broken
- Do not use lamp where directly exposed to water or outdoors without an enclosed fixture
- Lamps with E-rated ANSI codes must be operated in enclosed fixtures - See Instructions
- Do not store flammable materials near/below S-rated lamp in open fixture
- Use only properly rated ballast
- Do not exceed rated voltage
- Do not turn on lamp until fully installed
- Operate lamp only in specified position
- If used on a dimming system, see instructions

Caution

Risk of burn

- Allow lamp to cool before handling
- Do not turn on lamp until fully installed

Lamp may shatter and cause injury if broken

- Wear safety glasses and gloves when handling lamp
- Do not use lamp if outer glass is scratched or broken
- Dispose of lamp in a closed container
- Do not use excessive force when installing.

Rwarning

This lamp can cause serious skin burn and eye inflammation from shortwave ultraviolet radiation if outer envelope of the lamp is broken or punctured. Do not use where people will remain for more than a few minutes unless adequate shielding or other safety precautions are used. Lamps that will automatically extinguish when the outer envelope is broken or punctured are commercially available. This lamp certified to comply with FDA radiation performance standards, 21 CFR Subchapter J. USA: 21 CFR 1040.30 Canada: SOR/80-381

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